

SEQUENCE LISTING

<110> Synaptic Pharmaceutical Corporation

<120> DNA Encoding A Human Melanin Concentrating Hormone
Receptor (MCH1) And Uses Thereof

<130> 57453-A-PCT/JPW

<140> PCT/US99/31169

<141> 1999-12-30

<150> 09/224,426

<151> 1998-12-31

<160> 29

<170> PatentIn Ver. 2.1

<210> 1

<211> 1269

<212> DNA

<213> Homo sapiens

<400> 1

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<210> 2
 <211> 422
 <212> PRT
 <213> Homo sapiens

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 Gly Gly Gly Ser Gly Cys Gln Ala Thr Glu Glu Asp Pro Leu Pro Asp
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 Cys Gly Ala Cys Ala Pro Gly Gln Gly Gly Arg Arg Trp Arg Leu Pro
 35 40 45
 Gln Pro Ala Trp Val Glu Gly Ser Ser Ala Arg Leu Trp Glu Gln Ala
 50 55 60
 Thr Gly Thr Gly Trp Met Asp Leu Glu Ala Ser Leu Leu Pro Thr Gly
 65 70 75 80
 Pro Asn Ala Ser Asn Thr Ser Asp Gly Pro Asp Asn Leu Thr Ser Ala
 85 90 95
 Gly Ser Pro Pro Arg Thr Gly Ser Ile Ser Tyr Ile Asn Ile Ile Met
 100 105 110
 Pro Ser Val Phe Gly Thr Ile Cys Leu Leu Gly Ile Ile Gly Asn Ser
 115 120 125
 Thr Val Ile Phe Ala Val Val Lys Lys Ser Lys Leu His Trp Cys Asn
 130 135 140
 Asn Val Pro Asp Ile Phe Ile Ile Asn Leu Ser Val Val Asp Leu Leu
 145 150 155 160
 Phe Leu Leu Gly Met Pro Phe Met Ile His Gln Leu Met Gly Asn Gly
 165 170 175
 Val Trp His Phe Gly Glu Thr Met Cys Thr Leu Ile Thr Ala Met Asp
 180 185 190
 Ala Asn Ser Gln Phe Thr Ser Thr Tyr Ile Leu Thr Ala Met Ala Ile
 195 200 205
 Asp Arg Tyr Leu Ala Thr Val His Pro Ile Ser Ser Thr Lys Phe Arg
 210 215 220

Lys Pro Ser Val Ala Thr Leu Val Ile Cys Leu Leu Trp Ala Leu Ser
 225 230 235 240

Phe Ile Ser Ile Thr Pro Val Trp Leu Tyr Ala Arg Leu Ile Pro Phe
 245 250 255

Pro Gly Gly Ala Val Gly Cys Gly Ile Arg Leu Pro Asn Pro Asp Thr
 260 265 270

Asp Leu Tyr Trp Phe Thr Leu Tyr Gln Phe Phe Leu Ala Phe Ala Leu
 275 280 285

Pro Phe Val Val Ile Thr Ala Ala Tyr Val Arg Ile Leu Gln Arg Met
 290 295 300

Thr Ser Ser Val Ala Pro Ala Ser Gln Arg Ser Ile Arg Leu Arg Thr
 305 310 315 320

Lys Arg Val Thr Arg Thr Ala Ile Ala Ile Cys Leu Val Phe Phe Val
 325 330 335

Cys Trp Ala Pro Tyr Tyr Val Leu Gln Leu Thr Gln Leu Ser Ile Ser
 340 345 350

Arg Pro Thr Leu Thr Phe Val Tyr Leu Tyr Asn Ala Ala Ile Ser Leu
 355 360 365

Gly Tyr Ala Asn Ser Cys Leu Asn Pro Phe Val Tyr Ile Val Leu Cys
 370 375 380

Glu Thr Phe Arg Lys Arg Leu Val Leu Ser Val Lys Pro Ala Ala Gln
 385 390 395 400

Gly Gln Leu Arg Ala Val Ser Asn Ala Gln Thr Ala Asp Glu Glu Arg
 405 410 415

Thr Glu Ser Lys Gly Thr
 420

<210> 3

<211> 1214

<212> DNA

<213> Rattus norvegicus

<400> 3

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<210> 4

<211> 353

<212> PRT

<213> Rattus norvegicus

<400> 4

Met Asp Leu Gln Thr Ser Leu Leu Ser Thr Gly Pro Asn Ala Ser Asn
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Ile Ser Asp Gly Gln Asp Asn Leu Thr Leu Pro Gly Ser Pro Pro Arg
 20 25 30

Thr Gly Ser Val Ser Tyr Ile Asn Ile Ile Met Pro Ser Val Phe Gly
 35 40 45

Thr Ile Cys Leu Leu Gly Ile Val Gly Asn Ser Thr Val Ile Phe Ala
 50 55 60

Val Val Lys Lys Ser Lys Leu His Trp Cys Ser Asn Val Pro Asp Ile
 65 70 75 80

Phe Ile Ile Asn Leu Ser Val Val Asp Leu Leu Phe Leu Leu Gly Met
 85 90 95

Pro Phe Met Ile His Gln Leu Met Gly Asn Gly Val Trp His Phe Gly
 100 105 110

<210> 5
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 5
gggaactcca cggcatctt cgcggt

26

<210> 6
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 6
tagcgggtcaa tggccatggc ggtcag

26

<210> 7
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 7
ctcctgggca tgcccttcat gatccaccag ctcattgggca atggg

45

<210> 8
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 8
cttctaggcc tgtacggaag tgtta

25

<210> 9
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer/probe

<400> 9
 gttgtggttt gtccaaactc atcaatg 27

<210> 10
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer/probe

<400> 10
 cgcggatcca ttatgtctgc actccgaagg aaatttg 37

<210> 11
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer/probe

<400> 11
 cgcggaattct tatgtgaagc gatcagagtt catttttc 38

<210> 12
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer/probe

<400> 12
 gcgggatccg ctatggctgg tgattctagg aatg 34

<210> 13
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 13
ccggaattcc cctcacaccg agcccctgg 29

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 14
tcagctcggg tgtgggagca 20

<210> 15
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 15
cttggacttc ttcacgac 18

<210> 16
<211> 100
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: mutated human
MCH1

<400> 16

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Cys Gly Ala Cys Ala Pro Gly Gln Gly Gly Arg Arg Trp Arg Leu Pro
35 40 45
Gln Pro Ala Trp Val Glu Gly Ser Ser Ala Arg Leu Trp Glu Gln Ala
50 55 60
Thr Gly Thr Gly Trp Ala Asp Leu Glu Ala Ser Leu Leu Pro Thr Gly
65 70 75 80
Pro Asn Ala Ser Asn Thr Ser Asp Gly Pro Asp Asn Leu Thr Ser Ala
85 90 95
Gly Ser Pro Pro
100

<210> 17
<211> 100
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: mutated human
MCH1

<400> 17
Met Ser Val Gly Ala Ala Lys Lys Gly Val Gly Arg Ala Val Gly Leu
1 5 10 15
Gly Gly Gly Ser Gly Cys Gln Ala Thr Glu Glu Asp Pro Leu Pro Asp
20 25 30
Cys Gly Ala Cys Ala Pro Gly Gln Gly Gly Arg Arg Trp Arg Leu Pro
35 40 45
Gln Pro Ala Trp Val Glu Gly Ser Ser Ala Arg Leu Trp Glu Gln Ala
50 55 60
Thr Gly Thr Gly Trp Ala Asp Leu Glu Ala Ser Leu Leu Pro Thr Gly
65 70 75 80
Pro Asn Ala Ser Asn Thr Ser Asp Gly Pro Asp Asn Leu Thr Ser Ala

Gly Ser Pro Pro
100

<210> 18
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 18
cggcactggc tgggcggacc tggaagcctc g 31

<210> 19
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 19
cgaggcttcc aggtccgccc agccagtgcc g 31

<210> 20
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer/probe

<400> 20
atgtcagtgg gagccgcgaa gaagggagtg gg 32

<210> 21
<211> 32
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer/probe

<400> 21

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32

<210> 22

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer/probe

<400> 22

taatgtgtct aggtggcgctc agtgggagcc atg

33

<210> 23

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer/probe

<400> 23

catggctccc actgacgccca cctagacaca tta

33

<210> 24

<400> 24

000

<210> 25

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer/probe

<400> 25

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37

<210> 26

<211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: primer/probe

<400> 26
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24

<210> 27
 <211> 422
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: mutated human
 MCH1

<400> 27
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 1 5 10 15

Gly Gly Gly Ser Gly Cys Gln Ala Thr Glu Glu Asp Pro Leu Pro Asp
 20 25 30

Cys Gly Ala Cys Ala Pro Gly Gln Gly Gly Arg Arg Trp Arg Leu Pro
 35 40 45

Gln Pro Ala Trp Val Glu Gly Ser Ser Ala Arg Leu Trp Glu Gln Ala
 50 55 60

Thr Gly Thr Gly Trp Ala Asp Leu Glu Ala Ser Leu Leu Pro Thr Gly
 65 70 75 80

Pro Asn Ala Ser Asn Thr Ser Asp Gly Pro Asp Asn Leu Thr Ser Ala
 85 90 95

Gly Ser Pro Pro Arg Thr Gly Ser Ile Ser Tyr Ile Asn Ile Ile Met
 100 105 110

Pro Ser Val Phe Gly Thr Ile Cys Leu Leu Gly Ile Ile Gly Asn Ser
 115 120 125

Thr Val Ile Phe Ala Val Val Lys Lys Ser Lys Leu His Trp Cys Asn
 130 135 140

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Pro | Asp | Ile | Phe | Ile | Ile | Asn | Leu | Ser | Val | Val | Asp | Leu | Leu | 145 | 150 | 155 | 160 |
| Phe | Leu | Leu | Gly | Met | Pro | Phe | Met | Ile | His | Gln | Leu | Met | Gly | Asn | Gly | 165 | 170 | 175 | |
| Val | Trp | His | Phe | Gly | Glu | Thr | Met | Cys | Thr | Leu | Ile | Thr | Ala | Met | Asp | 180 | 185 | 190 | |
| Ala | Asn | Ser | Gln | Phe | Thr | Ser | Thr | Tyr | Ile | Leu | Thr | Ala | Met | Ala | Ile | 195 | 200 | 205 | |
| Asp | Arg | Tyr | Leu | Ala | Thr | Val | His | Pro | Ile | Ser | Ser | Thr | Lys | Phe | Arg | 210 | 215 | 220 | |
| Lys | Pro | Ser | Val | Ala | Thr | Leu | Val | Ile | Cys | Leu | Leu | Trp | Ala | Leu | Ser | 225 | 230 | 235 | 240 |
| Phe | Ile | Ser | Ile | Thr | Pro | Val | Trp | Leu | Tyr | Ala | Arg | Leu | Ile | Pro | Phe | 245 | 250 | 255 | |
| Pro | Gly | Gly | Ala | Val | Gly | Cys | Gly | Ile | Arg | Leu | Pro | Asn | Pro | Asp | Thr | 260 | 265 | 270 | |
| Asp | Leu | Tyr | Trp | Phe | Thr | Leu | Tyr | Gln | Phe | Phe | Leu | Ala | Phe | Ala | Leu | 275 | 280 | 285 | |
| Pro | Phe | Val | Val | Ile | Thr | Ala | Ala | Tyr | Val | Arg | Ile | Leu | Gln | Arg | Met | 290 | 295 | 300 | |
| Thr | Ser | Ser | Val | Ala | Pro | Ala | Ser | Gln | Arg | Ser | Ile | Arg | Leu | Arg | Thr | 305 | 310 | 315 | 320 |
| Lys | Arg | Val | Thr | Arg | Thr | Ala | Ile | Ala | Ile | Cys | Leu | Val | Phe | Phe | Val | 325 | 330 | 335 | |
| Cys | Trp | Ala | Pro | Tyr | Tyr | Val | Leu | Gln | Leu | Thr | Gln | Leu | Ser | Ile | Ser | 340 | 345 | 350 | |
| Arg | Pro | Thr | Leu | Thr | Phe | Val | Tyr | Leu | Tyr | Asn | Ala | Ala | Ile | Ser | Leu | 355 | 360 | 365 | |
| Gly | Tyr | Ala | Asn | Ser | Cys | Leu | Asn | Pro | Phe | Val | Tyr | Ile | Val | Leu | Cys | 370 | 375 | 380 | |
| Glu | Thr | Phe | Arg | Lys | Arg | Leu | Val | Leu | Ser | Val | Lys | Pro | Ala | Ala | Gln | 385 | 390 | 395 | 400 |

Gly Gln Leu Arg Ala Val Ser Asn Ala Gln Thr Ala Asp Glu Glu Arg
 405 410 415

Thr Glu Ser Lys Gly Thr
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<210> 28
 <211> 422
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: mutated human
 MCH1

<400> 28
 Met Ser Val Gly Ala Ala Lys Lys Gly Val Gly Arg Ala Val Gly Leu
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 Gly Gly Gly Ser Gly Cys Gln Ala Thr Glu Glu Asp Pro Leu Pro Asp
 20 25 30
 Cys Gly Ala Cys Ala Pro Gly Gln Gly Gly Arg Arg Trp Arg Leu Pro
 35 40 45
 Gln Pro Ala Trp Val Glu Gly Ser Ser Ala Arg Leu Trp Glu Gln Ala
 50 55 60
 Thr Gly Thr Gly Trp Ala Asp Leu Glu Ala Ser Leu Leu Pro Thr Gly
 65 70 75 80
 Pro Asn Ala Ser Asn Thr Ser Asp Gly Pro Asp Asn Leu Thr Ser Ala
 85 90 95
 Gly Ser Pro Pro Arg Thr Gly Ser Ile Ser Tyr Ile Asn Ile Ile Met
 100 105 110
 Pro Ser Val Phe Gly Thr Ile Cys Leu Leu Gly Ile Ile Gly Asn Ser
 115 120 125
 Thr Val Ile Phe Ala Val Val Lys Lys Ser Lys Leu His Trp Cys Asn
 130 135 140
 Asn Val Pro Asp Ile Phe Ile Ile Asn Leu Ser Val Val Asp Leu Leu
 145 150 155 160
 Phe Leu Leu Gly Met Pro Phe Met Ile His Gln Leu Met Gly Asn Gly

Val Trp His Phe Gly Glu Thr Met Cys Thr Leu Ile Thr Ala Met Asp
180 185 190

Ala Asn Ser Gln Phe Thr Ser Thr Tyr Ile Leu Thr Ala Met Ala Ile
195 200 205

Asp Arg Tyr Leu Ala Thr Val His Pro Ile Ser Ser Thr Lys Phe Arg
210 215 220

Lys Pro Ser Val Ala Thr Leu Val Ile Cys Leu Leu Trp Ala Leu Ser
225 230 235 240

Phe Ile Ser Ile Thr Pro Val Trp Leu Tyr Ala Arg Leu Ile Pro Phe
245 250 255

Pro Gly Gly Ala Val Gly Cys Gly Ile Arg Leu Pro Asn Pro Asp Thr
260 265 270

Asp Leu Tyr Trp Phe Thr Leu Tyr Gln Phe Phe Leu Ala Phe Ala Leu
275 280 285

Pro Phe Val Val Ile Thr Ala Ala Tyr Val Arg Ile Leu Gln Arg Met
290 295 300

Thr Ser Ser Val Ala Pro Ala Ser Gln Arg Ser Ile Arg Leu Arg Thr
305 310 315 320

Lys Arg Val Thr Arg Thr Ala Ile Ala Ile Cys Leu Val Phe Phe Val
325 330 335

Cys Trp Ala Pro Tyr Tyr Val Leu Gln Leu Thr Gln Leu Ser Ile Ser
340 345 350

Arg Pro Thr Leu Thr Phe Val Tyr Leu Tyr Asn Ala Ala Ile Ser Leu
355 360 365

Gly Tyr Ala Asn Ser Cys Leu Asn Pro Phe Val Tyr Ile Val Leu Cys
370 375 380

Glu Thr Phe Arg Lys Arg Leu Val Leu Ser Val Lys Pro Ala Ala Gln
385 390 395 400

Gly Gln Leu Arg Ala Val Ser Asn Ala Gln Thr Ala Asp Glu Glu Arg
405 410 415

Thr Glu Ser Lys Gly Thr

<210> 29
 <211> 353
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutated human
 MCH1

<400> 29

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Leu | Glu | Ala | Ser | Leu | Leu | Pro | Thr | Gly | Pro | Asn | Ala | Ser | Asn | 1 | 5 | 10 | 15 |
| Thr | Ser | Asp | Gly | Pro | Asp | Asn | Leu | Thr | Ser | Ala | Gly | Ser | Pro | Pro | Arg | 20 | 25 | 30 | |
| Thr | Gly | Ser | Ile | Ser | Tyr | Ile | Asn | Ile | Ile | Met | Pro | Ser | Val | Phe | Gly | 35 | 40 | 45 | |
| Thr | Ile | Cys | Leu | Leu | Gly | Ile | Ile | Gly | Asn | Ser | Thr | Val | Ile | Phe | Ala | 50 | 55 | 60 | |
| Val | Val | Lys | Lys | Ser | Lys | Leu | His | Trp | Cys | Asn | Asn | Val | Pro | Asp | Ile | 65 | 70 | 75 | 80 |
| Phe | Ile | Ile | Asn | Leu | Ser | Val | Val | Asp | Leu | Leu | Phe | Leu | Leu | Gly | Met | 85 | 90 | 95 | |
| Pro | Phe | Met | Ile | His | Gln | Leu | Met | Gly | Asn | Gly | Val | Trp | His | Phe | Gly | 100 | 105 | 110 | |
| Glu | Thr | Met | Cys | Thr | Leu | Ile | Thr | Ala | Met | Asp | Ala | Asn | Ser | Gln | Phe | 115 | 120 | 125 | |
| Thr | Ser | Thr | Tyr | Ile | Leu | Thr | Ala | Met | Ala | Ile | Asp | Arg | Tyr | Leu | Ala | 130 | 135 | 140 | |
| Thr | Val | His | Pro | Ile | Ser | Ser | Thr | Lys | Phe | Arg | Lys | Pro | Ser | Val | Ala | 145 | 150 | 155 | 160 |
| Thr | Leu | Val | Ile | Cys | Leu | Leu | Trp | Ala | Leu | Ser | Phe | Ile | Ser | Ile | Thr | 165 | 170 | 175 | |
| Pro | Val | Trp | Leu | Tyr | Ala | Arg | Leu | Ile | Pro | Phe | Pro | Gly | Gly | Ala | Val | 180 | 185 | 190 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Cys | Gly | Ile | Arg | Leu | Pro | Asn | Pro | Asp | Thr | Asp | Leu | Tyr | Trp | Phe |
| 195 | | | | 200 | | | | 205 | | | | | | | |
| Thr | Leu | Tyr | Gln | Phe | Phe | Leu | Ala | Phe | Ala | Leu | Pro | Phe | Val | Val | Ile |
| 210 | | | | 215 | | | | 220 | | | | | | | |
| Thr | Ala | Ala | Tyr | Val | Arg | Ile | Leu | Gln | Arg | Met | Thr | Ser | Ser | Val | Ala |
| 225 | | | | 230 | | | | 235 | | | | 240 | | | |
| Pro | Ala | Ser | Gln | Arg | Ser | Ile | Arg | Leu | Arg | Thr | Lys | Arg | Val | Thr | Arg |
| | | | | 245 | | | | 250 | | | | 255 | | | |
| Thr | Ala | Ile | Ala | Ile | Cys | Leu | Val | Phe | Phe | Val | Cys | Trp | Ala | Pro | Tyr |
| 260 | | | | 265 | | | | 270 | | | | | | | |
| Tyr | Val | Leu | Gln | Leu | Thr | Gln | Leu | Ser | Ile | Ser | Arg | Pro | Thr | Leu | Thr |
| 275 | | | | 280 | | | | 285 | | | | | | | |
| Phe | Val | Tyr | Leu | Tyr | Asn | Ala | Ala | Ile | Ser | Leu | Gly | Tyr | Ala | Asn | Ser |
| 290 | | | | 295 | | | | 300 | | | | | | | |
| Cys | Leu | Asn | Pro | Phe | Val | Tyr | Ile | Val | Leu | Cys | Glu | Thr | Phe | Arg | Lys |
| 305 | | | | 310 | | | | 315 | | | | 320 | | | |
| Arg | Leu | Val | Leu | Ser | Val | Lys | Pro | Ala | Ala | Gln | Gly | Gln | Leu | Arg | Ala |
| | | | | 325 | | | | 330 | | | | 335 | | | |
| Val | Ser | Asn | Ala | Gln | Thr | Ala | Asp | Glu | Glu | Arg | Thr | Glu | Ser | Lys | Gly |
| 340 | | | | 345 | | | | 350 | | | | | | | |
| Thr | | | | | | | | | | | | | | | |